**VIRUSES**

*\*Do #1 for homework.*

*\* Do #2 in class.*

1. What are viruses?
   1. Are viruses living or non-living? Why?

Living, because it's an organism

* 1. Are viruses smaller or bigger than bacteria? How much smaller is the HIV virus than the e-coli bacteria? (go to *http://learn.genetics.utah.edu/content/begin/cells/scale/* to get this info.

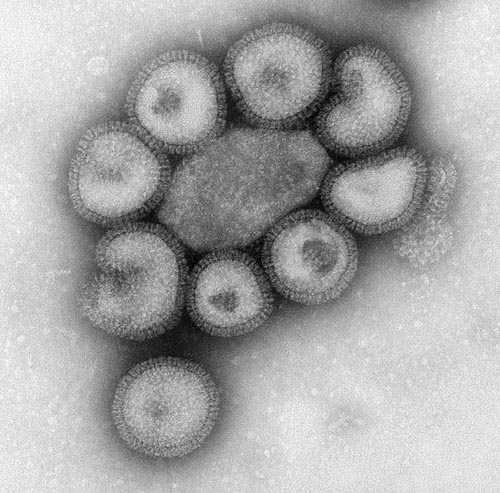
Viruses are smaller, HIV virus is 130 nanometers and the e-coli bacteria is 3 x .6 micrometers. Some 100 times smaller

* 1. Name 3 diseases that are caused by viral infection.

Ebola, AIDS, avian influenza

* 1. What is the structure of a virus? Include core, capsid and envelope.

In the core has nucleic acid and the capsid is a protein protective coating. The envelope is a lipid coating that is usually off of the host cell.

* 1. Study each virus in page 477, and describe its shape.
  2. Describe the process by which viruses attach to host cells. Explain why this process is “specific” to certain cells and species.

Its different because the host cells are different and the viruses are different structurally.

* 1. What happens to the viral nucleic acids once they enter the host cell?

They are injected

* 1. Lytic versus lysogenic cycles.
     1. Decribe the lytic cycle.

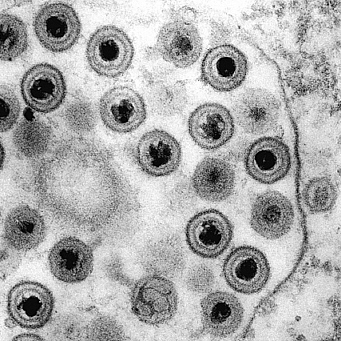
First, penatration and injected fluids. Cell misstakes the injected nucleic acid for its own, so it copys itself, then organize the DNA as viruses in the cell, and when theres too much to hold it spplits and they infect other cells.

* + 1. Describe the lysogenic cycle. What is a provirus?

The virus spreads throught cells but does not release until a certain something triggers it to release. Provirus is for the virus

* + 1. Do the problem solving lab 18.1 in page 480. Which viruses are lytic and which are lysogenic? Include answers to questions 1-4.
    2. Why are lysogenic viruses easier to spread?

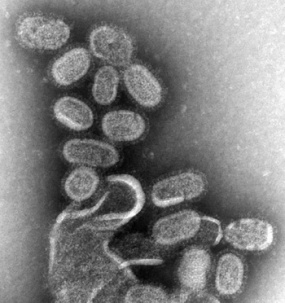
Because they arent noticed until triggered

* 1. How can the chicken-pox virus cause shingles many years later?

Shingles are caused because the chicken pox virus stays in your body, but you are immune to it. And if it breaks out of the nerve bodies it can travel down your axon terminals to your skin and create a rash years after the chicken pox

* 1. What is a retrovirus? How are they different from other viruses? What is an example of a retrovirus?

Retrovirus provokes the cell to do reverse transcriptase, which is RNA to DNA instead of DNA to RNA.

1. What is HIV? How does HIV infect a cell?
   1. WATCH AS A CLASS: <http://www.youtube.com/watch?v=0SOzJVrqBbU>
   2. <http://www.pbs.org/wgbh/pages/frontline/aids/etc/quiz.html> - How much do you know about HIV? Take this quiz first.
   3. Myths and misunderstandings.
      1. <http://thebody.com/content/whatis/art17060.html>
      2. <http://thebody.com/content/whatis/art32256.html>
      3. <http://thebody.com/content/whatis/art6073.html>
      4. <http://thebody.com/content/whatis/art17111.html>
      5. List 3 common myths about HIV or AIDS.
   4. What does HIV stand for?
   5. Use these 2 links to answer question “f”
      1. <http://www.cellsalive.com/hiv0.htm> - more simple (start here)
      2. <http://thebody.com/content/whatis/art14193.html> -more complex
   6. Explain and describe what happens in each of the following steps
      1. Viral attachment
      2. Viral penetration/fusion
      3. Uncoating
      4. Reverse transcription
      5. Integration/transcription
      6. Translation and protein synthesis
      7. Cleavage and viral assembly (viral protease)
      8. Budding
   7. There are many different types of medicine that try to slow down HIV infection. Explain how each of the following attempt to slow down HIV. Make sure to mention which step they are trying to stop and how.
      1. Attachment/entry inhibitors
      2. Fusion inhibitors
      3. Reverse transcriptase inhibitors
      4. Integrase inhibitors
      5. Zinc finger inhibitors
      6. Why is it so hard to treat HIV? Why is it so hard to develop a vaccine against HIV?
   8. Testing for HIV. <http://thebody.com/index/testing.html>
      1. What does the HIV test look for?
      2. How fast after transmission can the regular HIV test detect HIV infection?
   9. Go to <http://thebody.com/content/whatis/art2494.html>
      1. What type of cells does HIV infect?

* + 1. <http://thebody.com/content/art6319.html#tcells>
    2. What is the normal function of these cells (T-cells)?
  1. How is HIV spread?
     1. What are some of the ways in which HIV is spread?
     2. What are some ways in which HIV is NOT spread
  2. What is AIDS?
     1. Watch this video: <http://www.brainpop.com/health/diseasesandconditions/aids/>
     2. What does AIDS stand for?
     3. How is AIDS different from HIV?
     4. Go to <http://thebody.com/content/art17135.html#diseases> What are opportunistic infections? Why can you get some of these diseases if you have AIDS?
     5. When is a person said to have AIDS? <http://thebody.com/content/whatis/art6128.html>